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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/583,903	06/01/2000	Siu-Leong lu	1999-30	5347

23823 7590 03/25/2004		EXAMINER
Digital Video Express, LP		SONG, HOSUK
1408 BAYSHIRE LANE		

ART UNIT	PAPER NUMBER
2135	

Digital Video Express, LP
1408 BAYSHIRE LANE
Herndon, VA 20170

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/583,903	IU ET AL.
	Examiner	Art Unit	
	Hosuk Song	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 June 2000</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 June 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.   Claims 1-3,9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zeng(US 6,373,974) in view of Leighton(US 5,949,885).

Claims 1,3,13-17,19: Zeng's patent discloses embedding watermark method receiving

content and creating a continuous watermark sequence from watermark in (fig.1a). Zeng

disclose sample mean and sample variance in (col.5,lines 49-67). Zeng discloses generating a

set of content coefficients from content and generating a set of watermark coefficient from

watermark sequence in (col.9,lines 20-40). Zeng discloses embedding watermark in content by

adjusting amplitude of watermark coefficient so that distortion between the coefficient and

associated watermark coefficients are minimized in (col.9,lines 24-47). Zeng does not

specifically disclose using a secret mapping function. Leighton discloses secret mapping

function used in watermark scheme in (col.5,lines 66-67 and col.6,lines 1-8). It would have

been obvious to person of ordinary skill in the art at the time invention was made to employ

secret mapping function as taught in Leighton with watermark embedding method disclosed in

Zeng in order to enhance the security of is data and watermark can be easily identified and

reconstructed of original offset watermark vector locally instead of retrieving the vector from a

database. Zeng discloses outputting the content in (fig.1a).

Claim 2: Zeng discloses embedding watermark in the content is performed by adjusting the watermark coefficients sequentially in a predetermined order in (col.9,lines 26-44).

Claims 9,12: Neither Zeng nor Leighton specifically discloses different quantization step size. Official Notice is taken that different quantization step size is well known in the art. One of ordinary skill in the art would have been motivated to employ different quantization step size such that image quality will not decline and survive the distortion channel.

Claim 11: Neither Zeng nor Leighton specifically discloses triangle mapping function. Official notice is taken that triangle mapping function is well known in the art. One of ordinary skill in the art would have been motivated to use triangle mapping function in order to avoid distorting the texture of the image.

Claim 10: Neither Zeng nor Leighton specifically discloses sawtoothed function. Official Notice is taken that sawtoothed function is well known in the art. One of ordinary skill in the art would have been motivated to use sawtoothed function or continuous periodic function because watermark embedding function is a multi-one function in which plural input values in the defined range correspond to the same output value. Concretely, a process becomes simple when a simple function is used, therefore it is desirable to use a periodic function or sawtoothed function.

Claim 18: Neither Zeng nor Leighton specifically discloses first determined order is a raster scan order. Official notice is taken that raster scan order is well known in the art. One of ordinary skill in the art would have been motivated to employ raster scan order in order to output signal or convert signals into recognizable symbols.

Claim 20: Zeng's patent discloses embedding watermark method receiving content and creating a continuous watermark sequence from watermark in (fig.1a). Zeng disclose sample mean and sample variance in (col.5,lines 49-67). Zeng discloses generating a set of content

coefficients from content and generating a set of watermark coefficient from watermark

sequence in (col.9,lines 20-40). Zeng discloses embedding watermark in content by adjusting

amplitude of watermark coefficient so that distortion between the coefficient and associated

watermark coefficients are minimized in (col.9,lines 24-47). Zeng does not specifically disclose

using a secret mapping function. Leighton discloses secret mapping function used in watermark

scheme in (col.5,lines 66-67 and col.6,lines 1-8). It would have been obvious to person of

ordinary skill in the art at the time invention was made to employ secret mapping function as

taught in Leighton with watermark embedding method disclosed in Zeng in order to enhance the

security of is data and watermark can be easily identified and reconstructed of original offset

watermark vector locally instead of retrieving the vector from a database. Zeng discloses

outputting the content in (fig.1a).

2.   Claims 4-8,21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zeng(US 6,373,974) in view of Leighton(US 5,949,885) and further in view of Moskowitz et

al.(US 5,905,800).

Claims 4-8: Neither Zeng nor Leighton specifically discloses key dependent sequences

are key dependent random sequences. Moskowitz discloses key dependent random sequences

in (col.3,lines 26-32,44-47). It would have been obvious to person of ordinary skill in the art at

the time invention was made to employ key dependent random sequences as taught in

Moskowitz with watermark insertion method disclosed in Zeng and Leighton to make watermark

virtually impossible to find without permissive use of the key. Since key is random, key is

protected against brute force attack. Moskowitz discloses uniform distribution of key dependent

sequences in (col.3,lines 44-47).

Claims 21-23: Zeng disclose a noise source in (col.8,lines 46-51). Neither Zeng nor

Leighton specifically discloses key dependent sequences are key dependent random

sequences. Moskowitz discloses key dependent random sequences in (col.3,lines 26-32,44-47).

It would have been obvious to person of ordinary skill in the art at the time invention was made

to employ key dependent random sequences as taught in Moskowitz with watermark insertion

method disclosed in Zeng and Leighton to make watermark virtually impossible to find without

permissive use of the key. Since key is random, key is protected against brute force attack.

Moskowitz discloses uniform distribution of key dependent sequences in (col.3,lines 44-47).

Zeng disclose sample mean and sample variance in (col.5,lines 49-67). Zeng discloses

generating a set of content coefficients from content and generating a set of watermark

coefficient from watermark sequence in (col.9,lines 20-40). Zeng discloses embedding

watermark in content by adjusting amplitude of watermark coefficient so that distortion between

the coefficient and associated watermark coefficients are minimized in (col.9,lines 24-47). Zeng

does not specifically disclose using a secret mapping function. Leighton discloses secret

mapping function used in watermark scheme in (col.5,lines 66-67 and col.6,lines 1-8). It would

have been obvious to person of ordinary skill in the art at the time invention was made to

employ secret mapping function as taught in Leighton with watermark embedding method

disclosed in Zeng in order to enhance the security of is data and watermark can be easily

identified and reconstructed of original offset watermark vector locally instead of retrieving the

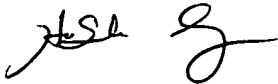vector from a database. Zeng discloses outputting the content in (fig.1a).

Conclusion

3.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Hosuk Song whose telephone number is 703-305-0042. The examiner

can normally be reached on Tue-Fri from 6:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Vu can be reached on 703-305-4393. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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